

REMARKS

Claims 1-2 and 7-33 are now pending in the application. Claim 1 is currently amended. Claims 2 and 7-33 are withdrawn. Claim 3 is cancelled. No new claims are added. Support for the foregoing amendment can be found throughout the specification, drawings, and claims as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102 AND § 103

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Mizobe (JP 05-337839). Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Mizobe (JP 05-337839) in view of Myoga (JP 4-4766). Claims 3-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mizobe (JP 05-337839) in view of Ohnishi (U.S. Pat. No. 4,965,482). These rejections are respectfully traversed.

In response, claim 1 has been amended based on the limitations of claim 3, this claim thus having been cancelled. Claim 1 also has been amended to correct a typographical error. The rejection of claim 1 as being anticipated by Mizobe has become moot due to the amendment based on claim 3.

Claim 1 recites, among other things, that “when the rotation axis in the rotation direction of a screw is set as a z-axis in an xyz orthogonal coordinate system, the piezoelectric element comprises pitch-direction flexural oscillation piezoelectric elements that excite pitch-direction flexural oscillation have a y-axis as a pitch axis, and

roll-direction flexural oscillation piezoelectric elements that excite roll-direction flexural oscillation having an x-axis, which is perpendicular to the pitch axis, as a roll axis.” Applicant respectfully submits that either Myoga or Ohnishi does not disclose the above-identified feature of the claimed feature of the claimed invention as discussed below.

In claim 1, a “pitch direction” is a direction of rotation about a y-axis, namely, a direction of rotation about a pitch axis, and a “roll direction” is a direction of rotation about an x-axis, namely, a direction of rotation about a roll axis. Thus, according to the configuration of claim 1, the pitch-direction flexural oscillation and the roll-direction flexural oscillation are excited in the directions of the arrows as shown in FIG. 1 described below.

On the other hand, as shown in FIG. 1 of Myoga, an ultrasonic motor includes a piezoelectric element 10 for activating longitudinal oscillation and a piezoelectric element 11 for activating torsional oscillation. The ultrasonic motor disclosed in Myoga thus generates the longitudinal oscillation and the torsional oscillation in the directions of the arrows shown in FIG. 2 described below.

Ohnishi discloses in FIG. 13 an ultrasonic motor that generates longitudinal vibration and torsional vibration. Therefore, the ultrasonic motor disclosed in Ohnishi also generates the longitudinal oscillation and the torsional oscillation in the direction of the arrows shown in FIG. 2 described below.

As is apparent from FIGS. 1 and 2, the pitch-direction flexural oscillation and the roll-direction flexural oscillation, which are recited in claim 1, are different from the longitudinal oscillation and the torsional oscillation, which are described in Myoga and

Ohnishi, respectively. Therefore, Myoga and Ohnishi do not disclose the above-indicated feature of claim 1. For at least the foregoing reasons, the combination of Mizobe and Myoga or Ohnishi clearly does not render claim 1 obvious.

Applicant notes that the device according to claim 1 has an advantage that since it adopts for the piezoelectric elements, pitch-direction flexural oscillation piezoelectric elements that excite pitch-direction flexural oscillations and roll-direction flexural oscillation piezoelectric elements that excite roll-direction flexural oscillations with respect the screw-in direction of the screw, flexural oscillations in at least two directions can be excited in combination on the oscillation surface of the device body, which can generate running torque on the screw.

Claims 4-6 depend from base claim 1, and further define additional technical features of the present invention. In view of the patentability of their base claim, and in further view of their additional technical features, Applicant respectfully submits that the dependent claims are patentable over the prior art.

FIGURES REFERENCED IN REMARKS

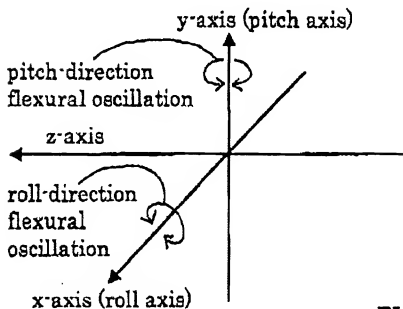


FIG. 1

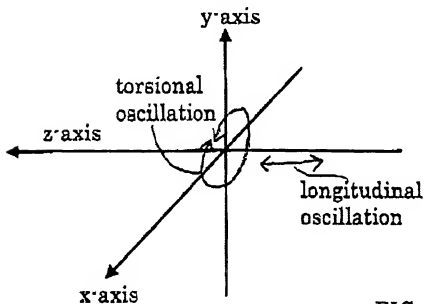



FIG. 2

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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